

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-283276

(43)Date of publication of application : 03.10.2002

(51)Int.Cl.

B25J 19/06

B25J 9/10

G05B 19/18

(21)Application number : 2001-081553

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(22)Date of filing : 21.03.2001

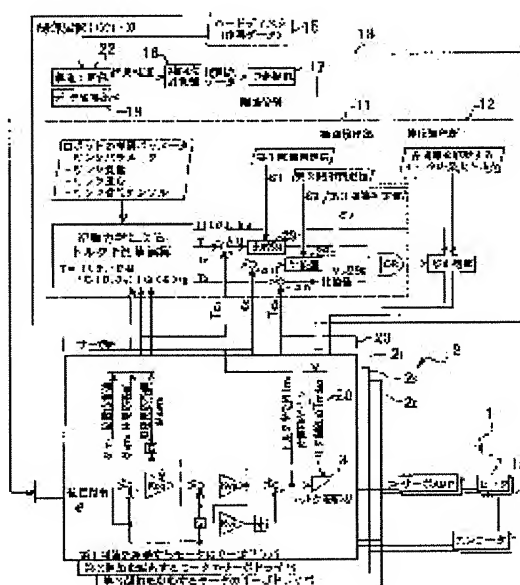
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(54) COLLISION DETECTING-STOPPING CONTROL METHOD IN ARTICULATED ROBOT

(57)Abstract:

PROBLEM TO BE SOLVED: To highly accurately detect the occurrence of a collision in a short time from a fluctuation in joint driving torque generated by the collision, to relieve interference force from an obstacle at stopping processing time after detecting the collision, and to minimize damage.

SOLUTION: Torques T1, T2 and T3 to be generated by respective motors at collision nonoccurrence time are anticipated by an inverse dynamic operation from a position θ_m , a speed $\dot{\theta}_m$, and acceleration $\ddot{\theta}_m$ of the motors detected by servo drivers 21, 22 and 23 for controlling the respective joint driving motors 11, 12 and 13 of a robot. A difference ΔT between the torque anticipative value and a torque command value T_m actually generated by the servo drivers or the joint driving torque calculated from a torque response value is determined. When an absolute value of the difference ΔT is larger than a preset determining value ϵ , it is regarded that the collision is caused. After the collision, the joints are made to perform escape operation to reduce the interference force.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]